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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Michael John Crabtree

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EXAMINER

DITRANI, ANGELA M

ART UNIT

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3676

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,359	Applicant(s) CRABTREE ET AL.	
	Examiner Angela M. DiTrani	Art Unit 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03/31/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in the United Kingdom on 10/02/2003. It is noted, however, that applicant has not filed a certified copy of the 0323065.3 application as required by 35 U.S.C. 119(b).

Specification

2. The disclosure is objected to because of the following informalities:
On p. 8, within the paragraph beginning at line 3, the acid dissociation constant values require reviewing. It appears that the negative sign and number following the "10" in each instance should be superscripted.
Appropriate correction is required.

Claim Objections

3. Claim 25 is objected to because of the following informalities: Within the preliminary amendment to the claims, claim 25 ends with the word "and;" it appears that the step "allowing oil to flow to the surface after the viscosity of the treatment fluid formulation has been lowered" as was previously claimed in claim 25 in the original claims was inadvertently left out. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 17 recites the limitation "said polymeric material" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is not clear which "polymeric material" applicant is referring to as claim 1 includes a first polymeric material, a second polymeric material, and a third polymeric material.

6. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The current phrasing of claim 19 is unclear; more specifically the portion "contacting the third polymeric material which forms with 5 to 20 wt% proppants" is confusing. For examination purposes, it is assumed that the scope of claim 19 is drawn to the preparation of the third polymeric material from the first and second polymeric materials, wherein the weight ratio of the first to second polymeric material is in the range of 0.025 to 0.067 and that upon preparation of the third polymeric material, the third polymeric material is mixed with 5 to 20 wt% proppants.

7. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 25 recites the limitation "the first aspect" in lines 7-8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101/ Claim Rejections - 35 USC § 112

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 provides for the use of a treatment fluid, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 23 is further rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 18 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Eagland et al. (US 2005/0189109).

With respect to claim 18, Eagland et al. discloses a method of preparing a treatment fluid formulation comprising: selecting a first polymeric material and a second polymeric material as described in claim 1; and causing the formation of a third polymeric material by a reaction involving said first and second polymeric materials (see [0007]-[0041]).

With respect to claim 23, Eagland et al. discloses a method of breaking a third polymeric material as described in claim 1, the method comprising providing a formulation comprising said third polymeric material and a breaker means and causing said breaker means to change its state in order to release an active breaker material arranged to break the third polymeric material (see [0049]).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1-5, 7, 8, 10-17, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eagland et al. (US 2005/0189109) in view of Butler et al. (US 5,407,009).

With respect to independent claim 1, Eagland et al. discloses a method for recovering materials from a subterranean formation comprising the steps of contacting a subterranean formation with a treatment fluid formulation wherein the treatment fluid formulation comprises a third polymeric material which comprises a second polymeric material cross-linked by a first polymeric material, wherein said first polymeric material comprises a first polymeric material corresponding to formula (i) or (ii), as claimed (see entire disclosure).

The treatment fluid is disclosed to have a viscosity greater than that of water, and, further, may advantageously be formulated with varying viscosities by altering the relative amount and/or concentration of the first and second polymeric material used to prepare the third polymeric material. Although Eagland et al. discloses the treatment fluid as suitable for use within methods for recovering materials from a formation in which production wells having production perforations have been formed and formation fractures which extend into the primary well are shown, and further, wherein during primary production natural pressures within the formation force oil through rock pores and into fractures and into production wells (see esp. [0070]-[0073]), the reference fails to explicitly teach hydraulically fracturing the formation by contacting the formation with

the disclosed (and presently claimed) treatment fluid by contacting the formation at a rate and pressure sufficient to produce or extend a fracture in the formation. Butler et al. teaches a method for recovery of hydrocarbons from a hydrocarbon deposit comprising an injection and production well therein, where, prior to injection of the treatment material in the injection well and subsequent production from the producing well, the base of the deposit is hydraulically fractured by injection of water or other suitable fracturing fluid, thereby creating a permeable layer between the wells, for the purpose of subsequent recovery of produced hydrocarbons from the producing well. Since the viscosity of the treatment fluid formulation of Eagland et al. can be varied, and, is further disclosed to be greater than water, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the treatment fluid formulation of Eagland et al. within a hydraulic fracturing treatment of the formation in order to establish a permeable pathway between the injection and producing well therein; any subsequent injection of the treatment fluid formulation of Eagland et al. would provide for a passing of the treatment fluid formulation through the perforations within the injection well and into the oil bearing formation through the hydraulically created fractures, whereupon oil is forced towards the producing well.

With respect to depending claim 2, Eagland et al. teaches the reaction to form said third polymeric material prior to the treatment formulation being injected via a well bore into the subterranean formation (see [0046]).

With respect to depending claims 3 and 4, the combination of Eagland et al. in view of Butler et al. is silent to the treatment fluid formulation viscosity at 25°C and

200°F. Within the disclosure of Eagland et al., however, Eagland et al. teaches that, advantageously, the viscosity of the fluid may be varied by varying the relative amounts and/or concentrations of the first and second polymeric materials used; therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the relative amounts and concentrations of the first and second polymeric materials within the treatment fluid formulation of Eagland et al. in order to obtain a treatment fluid formulation viscosity within the range as claimed at each of the respectively claimed temperatures insofar as because one of ordinary skill in the art would recognize the suitable viscosity for fracturing a given formation dependent upon the actual conditions encountered in the field and it has been held that “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F. 2d 454, 456, 105 USPQ 233, 234 (CCPA 1955).

With respect to depending claim 5, Eagland et al. teaches the aqueous treatment fluid formulation including at least 90 weight percent water (see [0037]).

With respect to depending claims 7 and 8, Eagland et al. teaches wherein said treatment fluid formulation comprises a breaker means for breaking the third polymeric material to reduce its viscosity and facilitate clean-up of the fracture; and further, where the breaker means is arranged to cleave chains of said third polymeric material (see [0049]).

With respect to depending claim 10, Eagland et al. teaches selecting a first polymeric material; selecting a second polymeric material which includes a functional

group which is able to react in the presence of said first polymeric material to form a third polymeric material; and causing the formation of said third polymeric material by a reaction involving said first and second polymeric materials (see [0007]-[0041]).

With respect to depending claims 11 and 12, Eagland et al. teaches the ratio of the weight percent of said first polymeric material to the weight percent of said second polymeric material selected for preparation of said third polymeric material less than 0.15 and at least 0.01; and further, wherein the sum in said treatment fluid formulation of the weight percent of the first and second polymeric material selected for preparation of said third polymeric material at least 1 weight percent and less than 8 weight percent, as claimed (see [0037]-[0038]).

With respect to depending claim 13, Eagland et al. teaches the provision of a catalyst for catalyzing the reaction of the first and second polymeric materials (see [0035]-[0037]).

With respect to depending claim 14, Eagland et al. teaches wherein one of A or B represents an optionally-substituted aromatic group and the other one represents an optionally substituted heteroaromatic group (see [0008]-[0041]).

With respect to depending claim 15, Eagland et al. teaches the first polymeric material as claimed (see [0008]-[0041]).

With respect to depending claims 16 and 17, Eagland et al. teaches the second polymeric material and the polymeric material includes at least one vinyl alcohol/vinyl acetate copolymer as claimed (see [0036], [0049], [0067]).

With respect to claim 22, Eagland et al. in view of Butler et al. teaches the use of a treatment fluid formulation as claimed in hydraulically fracturing a subterranean formation (see rejection of claim 1 above).

15. Claims 6, 9, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eagland et al. in view of Butler et al. as applied to claim 1 above, and further in view of Walles et al. (US 4,741,401).

With respect to claim 6, Eagland et al. in view of Butler et al. teaches the method as stated above with respect to claim 1. The combination, however, is silent to the inclusion of one or more proppants within the treatment fluid formulation. Walles et al. teaches a hydraulic fracturing treatment wherein an encapsulated breaker is employed, and, depending on the specific fracturing treatment, proppants may be included (see col. 5, line 63-col. 6, line 18). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include one or more proppants within the treatment fluid formulation as taught by Eagland et al. when used in a hydraulic fracturing operation depending upon the specific fracturing treatment encountered in the field.

With respect to claims 9 and 24, Eagland et al., in view of Butler et al. teaches the method as stated above with respect to claim 1, wherein Eagland et al. teaches the inclusion of an oxidizing agent for the purpose of cleaving polymeric chains of the third polymeric material, thereby reducing the viscosity of the treatment fluid. The reference, however, fails to teach the breaker means arranged to have a delayed action, including

a means for restricting contact between an active material thereof and said third polymeric material as claimed in depending claim 9, as well as an encapsulated breaker means for the third polymeric material as claimed in claim 24.

Walles et al. teaches a method for treating a subterranean formation wherein controlled release capsules comprising a breaker contained within an enclosure member are employed for the purpose of breaking a treatment fluid; the breaker contained within the enclosed member can be any solid or liquid material that does not adversely interact or chemically react with the enclosure member. The enclosure member itself essentially is used for the purpose of conducting the release of the breaker in a controlled manner and for insuring that the entire amount of the breaker introduced into the formation is released. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a means for restricting contact between the active material of the breaker and the third polymeric material, wherein the breaker is encapsulated, as claimed in claims 9 and 24, respectively, in order to ensure that the desirable reduction in viscosity of the treatment fluid of Eagland et al. occurs at the appropriate time and location within the subterranean formation.

With respect to claim 25, Eagland et al. in view of Butler et al. teaches a method of recovering oil from a subterranean formation comprising: hydraulically fracturing a subterranean formation as described according to claim 1 and allowing oil to flow to the surface after the viscosity of the treatment fluid formulation has been lowered (see rejection of claim 1 above). The combination, however, is silent to the step of allowing

an area fractured to close down whilst being propped by a proppant; wherein as a result of said close down, a breaker means releases an active material which is arranged to lower the viscosity of the treatment fluid formulation of the first step. As stated above with respect to claims 9 and 24, Walles et al. teaches a method for treating a subterranean formation wherein controlled release capsules comprising a breaker contained within an enclosure member are employed for the purpose of breaking a treatment fluid; the breaker contained within the enclosed member can be any solid or liquid material that does not adversely interact or chemically react with the enclosure member. The enclosure member itself essentially is used for the purpose of conducting the release of the breaker in a controlled manner and for insuring that the entire amount of the breaker introduced into the formation is released. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a means for restricting contact between the active material of the breaker and the third polymeric material, wherein the breaker is encapsulated, as claimed in claims 9 and 24, respectively, in order to ensure that the desirable reduction in viscosity of the treatment fluid of Eagland et al. occurs at the appropriate time and location within the subterranean formation. Walles et al. further teaches that depending on the specific fracturing treatment, proppants may be included (see col. 5, line 63-col. 6, line 18). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include one or more proppants within the treatment fluid formulation as taught by Eagland et al. when used in a hydraulic fracturing operation depending upon the actual conditions encountered in the field.

16. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eagland et al. as applied to claim 18 above, with respect to claim 19, and further in view Butler et al. and Walles et al.

Eagland et al. teaches the first and second polymeric materials at a weight ratio as claimed. Eagland et al. in view of Butler et al. teaches the use of the treatment fluid within a hydraulic fracturing operation, as stated above with claim 1. The combination, however, is silent to the inclusion of one or more proppants within the treatment fluid formulation, wherein the proppant concentration falls within the range as claimed in claims 19 and 21. Walles et al. teaches a hydraulic fracturing treatment wherein an encapsulated breaker is employed, and, depending on the specific fracturing treatment, proppants may be included (see col. 5, line 63-col. 6, line 18). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include one or more proppants within the treatment fluid formulation as taught by Eagland et al. when used in a hydraulic fracturing operation depending upon the specific fracturing treatment encountered in the field. Although a concentration of proppant is not explicitly stated, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a concentration of proppant within the range as claimed insofar as because it has been held that “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F. 2d 454, 456, 105 USPQ 233, 234 (CCPA 1955).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. GB 2317895: Eagland et al. teaches a polymeric compound having the general formula corresponding to that of the polymeric material of claim 1 wherein the compound may be used within operations involving the recovery of oils.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. DiTrani whose telephone number is (571)272-2182. The examiner can normally be reached on M-F, 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Gay can be reached on (571)272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD
03/13/08

/Zakiya W. Bates/

Primary Examiner, Art Unit 3676